

# FLOOD WATER LEVEL DETECTION FOR STUDENT NOTIFICATION

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## **SUPERVISOR'S DECLARATION**

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science in Computer System & Networking.

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## **STUDENT'S DECLARATION**

I hereby declare that the work in this project is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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## **ABSTRAK**

Sistem Pengesanan Tahap Air Banjir untuk Pemberitahuan Pelajar adalah salah satu sistem yang diwujudkan untuk membantu orang terutama Pelajar UMP yang tinggal di kawasan banjir. Pengguna jalan raya terutamanya pelajar dan kakitangan UMP biasanya mendapatkan maklumat lewat tentang keadaan jalan yang mereka mahu gunakan dan kadang-kadang mereka akan terperangkap dan perlu kembali dan menggunakan jalan lain. Objektif sistem ini adalah untuk mencadangkan kaedah baru untuk mengumpul data dan membangunkan sistem pemantauan aplikasi mudah alih dan sistem pemantauan paras air untuk mengiktiraf dan merekodkan paras air dengan menggunakan sistem Arduino Uno dan sensor. Dengan menggunakan Rapid Application Development (RAD) sistem ini akan menghasilkan pelan perisian yang sesuai dengan sistem yang mempunyai empat fasa. Projek ini dapat membantu pelajar UMP mengurus cara mereka dan mengelakkan mereka daripada keadaan berbahaya dengan mencari cara lain. Bukan itu sahaja, ia dapat memberikan maklumat yang lebih cepat tentang keadaan kawasan banjir. Saya berharap sistem ini akan membantu pelajar UMP mendapatkan maklumat dan menjadi salah satu cara alternatif untuk mengelakkan dari keadaan banjir atau kawasan banjir

## **ABSTRACT**

Flood Water Level Detection for Student Notification is the one of the system that be created to help people especially UMP Students who is lived in flooding area. The road user especially UMP student and staff usually get late information about the road situation that they want to use and sometime they will be stuck and need to turn back and used another road. This objective of this system is to propose new method to collect the data and develop web mobile application and water level monitoring system to acknowledge and record the water level by using Arduino Uno and sensor system. By using the Rapid Application Development (RAD) this system will be produce a suitable software plan with the system that have four phases. This project can help people to manage their way and avoid them from dangerous situation by find another way out. Not only that, it can give more fast information about the flooding area situation. I hope this system will help people to get information and be one of the alternative way to avoided from flood situation or area.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

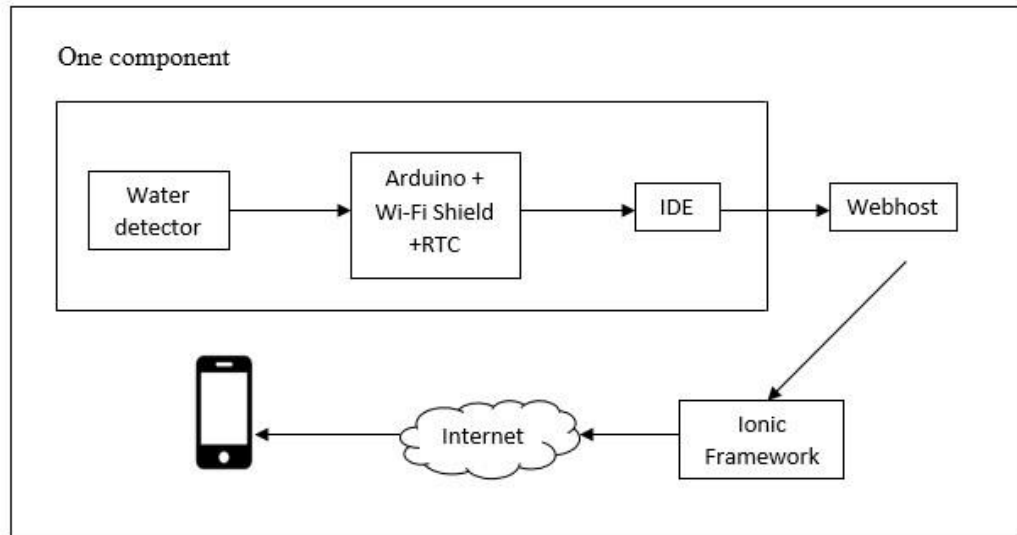
Flood Water Level Detection for Student Notification (FWLDFSN) is the one of the system that be created to help people especially UMP student and staffs who is lived at Gambang Damai which one of the place that possibly involved in flooding situation. It will give a lot of easier to user to get the information about the water level in without go to the flood area by using the detecting system and the student will get the better quality information and safety. Detecting system refers to the system that quickly identify a developing of water level before damage occurs.

Generally, Flood Water Level Detection for Student Notification (FWLDFSN) created to give information to the UMP students and staffs from involved or stuck in flooding area by sending message. For example, by using this system, user can check whether the road that they want to use are involved as a flooding area or not. Although, they can plan their trip with another way.

According to the National Oceanic and Atmospheric Administration (NOAA), for the past 30 years since 1994-2013, the most common deaths occurred due to floods. In 2014, floods become one of the most common causes of death associated with the weather. Not only that, Centers of Disease Control and Prevention, more than half vehicles drowned during floods.

Next, the disadvantage of the flooding situation is destruction of properties. Floods can drown the houses and damage other items such as electrical items, cars and so on. This can bring huge losses to the population. Besides, flood also cause loss of life especially in

low areas and near rivers. Not only that, flooding also can give impact to the government which is damage the public property such as roads, buildings, telephones, electricity and cause various diseases. All of this will be borne by the government to fix the damage and pay for medical equipment.



**Figure 1.1 : Flood Water Level Detection for Student Notification**

Figure 1.1 shown the step how the Water Level Detecting System work. The water detector hardware which is Ultrasonic Sensor will connect with Arduino Uno. The data from Arduino Uno will be sending to the student that used the mobile application by using GSM 900A. The data will be collected and save in Firebase which is similar to phpmyadmin but the Firebase be able to use it by online. Android Studio will be function as a mobile application platform to build a mobile application that will display the data to the users.

In conclusion, Flood Water Level Detection for Student Notification will help student to plan their way more efficient and can avoid them from become a victim of the flooding situation with the new detecting system. They also can get the notification by message about the latest result of water level.

## **1.2 PROBLEM STATEMENT**

- i. Department of Irrigation and Drainage need to be located at the site to check the water level manually and can cause long time to know the water level in some place.
- ii. The UMP Students and Staffs usually get late information about the road situation that they want to use and sometime they will be stuck and need to turn back and used another road.
- iii. Collecting the data manually would cause some data lost and not recorded systematically.

## **1.3 OBJECTIVES**

The objective of this project are:

- i. To investigate a system to detecting the water level for flooding situation
- ii. To propose new method to collect the data
- iii. To develop mobile application and water level monitoring system to acknowledge and record the water level by using Arduino Uno and sensor system.

## **1.4 SCOPE**

The scope of this project are:

- i. Build the system for UMP Students especially who live in Gambang Damai area to check the water level in their area with mobile application.
- ii. This system is suitable for the moderate level flooding area
- iii. This system also can be used in area that can be connected with Wi-Fi connection.

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